

Clackamas Community College

Online Course/Outline Submission System

Section #1 General Course Information

Department: Manufacturing

Submitter

First Name: Mike

Last Name: Mattson

Phone: 3322

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Course Prefix and Number: IMT - 234

Credits: 3

Contact hours

Lecture (# of hours): 33

Lec/lab (# of hours):

Lab (# of hours):

Total course hours: 33

For each credit, the student will be expected to spend, on average, 3 hours per week in combination of in-class and out-of-class activity.

Course Title: Programmable Logic Controllers II

Course Description:

An advanced course of study that will develop the student's understanding of Programmable Logic Controllers (PLC) in more detailed Industrial applications through lectures, labs and hands-on examples. This course will emphasize advanced PLC functions and data sets, networking schemes and human machine interfaces.

Type of Course: Career Technical Preparatory

Reason for the new course:

Needed to fill a gap in new degree and program

Is this class challengeable?

Yes

Can this course be repeated for credit in a degree?

No

Is general education certification being sought at this time?

No

Does this course map to any general education outcome(s)?

No

Is this course part of an AAS or related certificate of completion?

Yes

Name of degree(s) and/or certificate(s): Industrial Maintenance Technician

Are there prerequisites to this course?

Yes

Pre-reqs: IMT-233 Programmable Logic Controllers I

Have you consulted with the appropriate chair if the pre-req is in another program?

No

Are there corequisites to this course?

No

Are there any requirements or recommendations for students taken this course?

No

Are there similar courses existing in other programs or disciplines at CCC?

No

Will this class use library resources?

Yes

Have you talked with a librarian regarding that impact?

No

Is there any other potential impact on another department?

No

Does this course belong on the Related Instruction list?

No

GRADING METHOD:

A-F or Pass/No Pass

Audit: Yes

When do you plan to offer this course?

✓ **Fall**

Is this course equivalent to another?

If yes, they must have the same description and outcomes.

No

Will this course appear in the college catalog?

Yes

Will this course appear in the schedule?

Yes

Student Learning Outcomes:

Upon successful completion of this course, students should be able to:

1. identify the advanced functions of the PLC analog inputs and analog outputs,
2. recognize advanced Instruction Sets for Data Manipulation,
3. create and understanding networking schemes including Ethernet and Serial communications,
4. recognize how to create and communicate with Human Machine Interfaces (HMI) and how they interface with the PLC platform,
5. create and troubleshoot PLC's interconnected to demo units through labs and program software tools.

This course does not include assessable General Education outcomes.

Major Topic Outline:

1. Overview of Analog Signals, involving how to wire, test and troubleshoot through software and meters;
2. Perform higher level programming skills including Defined Function Blocks, Structured Text, Function Call, etc.;
3. Program, wire, and troubleshoot Ethernet Communication networks;
4. Create, program, and interconnect HMI's into the PLC platform;
5. Troubleshoot networks utilizing wireless Ethernet networks with Tablets, iPhones, and other wireless devices.

Does the content of this class relate to job skills in any of the following areas:

- | | |
|--------------------------------------|-----------|
| 1. Increased energy efficiency | No |
| 2. Produce renewable energy | No |
| 3. Prevent environmental degradation | No |
| 4. Clean up natural environment | No |
| 5. Supports green services | No |

Percent of course: 0%

First term to be offered:

Specify term: 2016/FA
